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THE ULTRASTRUCTURE OF THE EGGS OF *JALMENUS EVAGORA* (DONOVAN) (LEPIDOPTERA: LYCAENIDAE)

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Abstract

The egg of *Jalmenus evagoras* (Donovan) is described and illustrated by scan electron micrographs. Its structure is compared with that known for other speci Australian lycaenids.

Introduction

Common and Waterhouse (1972) give brief descriptions of the form structure of the eggs of 44 of the 127 species of Lycaenidae recorded by for Australia. These descriptions, based almost wholly on observations light microscopy, indicate a complexity and variety of structure which de further investigation. The scanning electron microscope provides the ideal for this purpose and, to date, the eggs of four species of Lycaenid have examined in this manner. Sands (1971) illustrates the egg of *Neosyn albosericea* (Miskin), and Daniels (1976) that of the northern *Hypochr theon* Felder. In addition Mr. R. H. Fisher, in a work in preparation, illustr the eggs of *Ogyris genoveva* Hewitson and *Candalides acastus* (Cox) (pers communication).

I recently had the opportunity to add eggs of *Jalmenus evagoras* (Don to this list and this note describes and illustrates the results.

Material and Methods

Eggs were obtained for me by Mr. E. D. Edwards from bark crevi *Acacia decurrens* on Black Mountain, A.C.T.

The eggs were left *in situ* on a small block of bark and the whol vacuum dried and then coated with gold/palladium. The finished prepa was examined using a JEOL JSM-U3® scanning electron microscope.

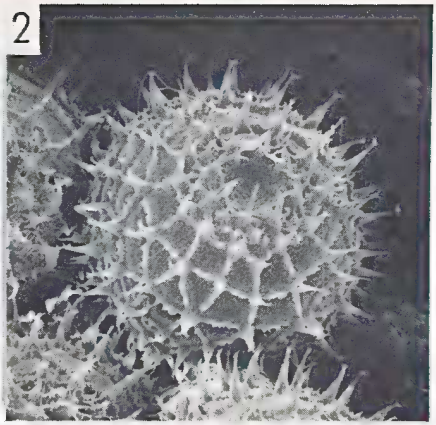
Description

The egg mass examined consisted of about 35 eggs piled in a heap egg in the mass was nearly spherical in shape, flattened basally and ha apical micropylar depression (Figs 1, 2).

The surface of the egg was covered by a reticulate pattern of ridges en ing triangular or rectangular portions of the surface except in the vicinity micropyle. The ridges conveyed the impression of a series of concentri arranged latitudinally around the egg. Each ridge consisted of jagged, conti projections perpendicular to the surface produced into spine-like structures interstices of the reticulations (Fig. 3). Most of these spines projected fro surface a distance about $^1/_6$ the equatorial diameter of the egg and pos expanded bifid or trifid tips (Fig. 4). The ring of spines around the circumf

Figs 1-6. Eggs of *Jalmenus evagoras* (Donovan): (1) batch of eggs *in situ* (x 35); (2) egg, dorso-lateral view (x 110); (3) surface reticulations showing arrangem ridges and spines (x 330); (4) spines showing bifid and trifid tips (x 660); (5) pylar region showing specialised ring of spines (x 220); (6) micropylar pit (x


1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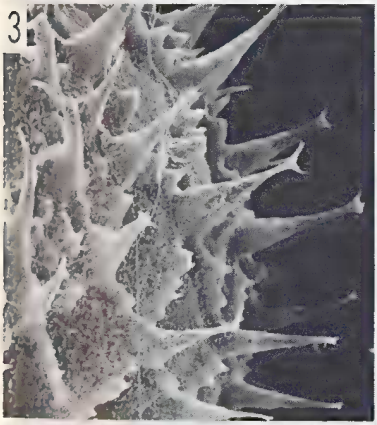
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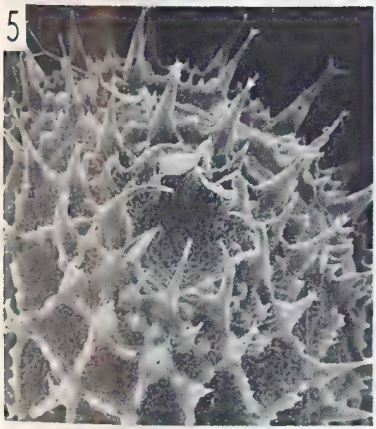
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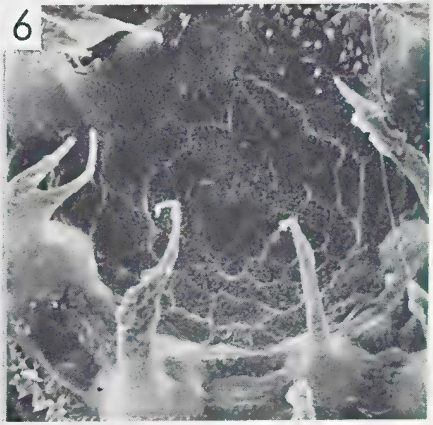
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of the micropylar pit, however, curved inwards and had simple tips (Fig.

The surface of the egg within the network of ridges appeared smooth unpitted and sparsely covered with irregularly distributed, oblong-ovate s (Fig. 3).

The micropylar pit was shallow and its sides were covered with a pa of low ridges enclosing irregularly shaped, shallow depressions (Fig. 6). T ridges were not spiny and were much less pronounced than those elsewhe the surface of the egg. Again the surface itself was sparsely scaly.

Discussion

The surface reticulation observed in *J. evagoras* provide a common fea with the other eggs examined using the S. E. M. However in *O. genover theon*, *N. albosericea* and *C. acastus* there are none of the spines seen i *evagoras*. The surface of *J. evagoras* also differs markedly from that of the o species inasmuch as it is smooth whereas in the other four it has a pitted, al spongy texture. Across all the species, however, the reticulations and sur structures show a variety and complexity which appear to lend themselve use in taxonomic and systematic work.

Eliot (1973), indeed, comments on the potential usefulness of structure in working out relationships within the Lycaenidae although, at same time, noting the dearth of information on the subject. However, Clark Dickson (1956) made extensive use of egg morphology in erecting a classific of the South African species and Döring (1955) provides a backgroun descriptions and keys permitting identification of the eggs of a wide rang European butterflies.

The tentative higher classification of the family provided by Eliot (19 provides a stimulus to workers to seek corroborative evidence for the relati ships he proposes. The morphology of eggs may well have an important rol play in this regard as they have in other orders [see, e.g., Southwood (1956 the Heteroptera] and the special techniques now available should allow us and fruitful comparisons within the Australian fauna and elsewhere.

Acknowledgements

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